

**LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY
OFFICE OF ENVIRONMENTAL SERVICES**

STATEMENT OF BASIS¹

PROPOSED PART 70 OPERATING PERMIT 3066-V0

HYDROCHLORIC ACID PRODUCTION FURNACE NO. 2

SHINTECH LOUISIANA, LLC

PLAQUEMINE, IBERVILLE PARISH, LOUISIANA

Agency Interest (AI) No. 126578

Activity No. PER20070011

I. APPLICANT

The applicant is: Shintech Louisiana, LLC
PO Box 358
Addis, Louisiana 70710-0358

Facility: Hydrochloric Acid Production Facility No. 2

SIC Code: 4953

Location: 26270 Hwy 405, Plaquemine
Iberville Parish, Louisiana

II. PERMITTING AUTHORITY

The permitting authority is: Louisiana Department of Environmental Quality
Office of Environmental Services
P.O. Box 4313
Baton Rouge, Louisiana 70821-4313

III. CONTACT INFORMATION

Additional information may be obtained from:

Mr. Anthony Randall
P.O. Box 4313
Baton Rouge, Louisiana 70821-4313
Phone: (225) 219-3181

IV. FACILITY BACKGROUND AND CURRENT PERMIT STATUS

Shintech Louisiana, LLC (Shintech) a wholly owned subsidiary of C-K Tech, Inc., proposes to construct and operate a second Hydrochloric Acid Production Furnace (HAPF-2) at Shintech's manufacturing facility located on the west bank of the

¹ 40 CFR 70.7(a)(5) and LAC 33:III.531.A.4 require the permitting authority to "provide a statement that sets forth the legal and factual basis for the proposed permit conditions of any permit issued to a Part 70 source, including references to the applicable statutory or regulatory provisions."

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Mississippi River near Plaquemine, Louisiana in Iberville Parish. The complex is referred to as Shintech Plaquemine plant (SPP) and includes the following facilities:

- SPP-1 – Authorized by Prevention of Significant Deterioration (PSD) Permit No. PSD-LA-709 and Clean Air Act (CAA) Title V Permit No. 1280-00118-V2 issued on March 1, 2010 by the Louisiana Department of Environmental Quality (LDEQ)
- HAPF-1 – Authorized by PSD Permit No. PSD-LA-738 issued February 27, 2009 and CAA Title V Permit No. 3064-V0 issued on February 27, 2009.
- SPP-2 – Authorized by PSD Permit No. PSD-LA-731 and Clean Air Act (CAA) Title V Permit No. 3063-V0 issued on July 10, 2008 by the Louisiana Department of Environmental Quality (LDEQ)
- HAPF-2

SPP-1 and SPP-2 are vertically integrated polyvinyl chloride (PVC) manufacturing facilities that also produce intermediate products, including chlorine (and caustic soda as a byproduct), ethylene dichloride (EDC), and vinyl chloride monomer (VCM). Process units include chlor-alkali units (C/A unit), VCM units, and a PVC unit. The C/A units use brine to produce chlorine (Cl_2) and sodium hydroxide (NaOH) by membrane based electrolysis process. The VCM unit produces EDC by reacting ethylene and chlorine in a direct chlorination reactor. The EDC is purified by distillation and sent to the cracking furnaces to yield VCM and hydrochloric acid (HCl). The VCM is purified and sent to storage spheres. EDC that was not cracked is sent back to the EDC purification trains. HCl is recovered and used in a second EDC formation process called oxyhydrochlorination. Purified VCM is polymerized to form PVC.

Shintech considers the HAPF-2 to be part of the entire SPP project (including SPP-1, SPP-2, HAPF-1, and HAPF-2) for federal New Source Review (NSR) applicability determination. Considering that there will be a Resource Conservation and Recovery Act (RCRA) permit associated with HAPF-2, for administrative purposes, Shintech requests stand-alone PSD and Title V permits for the HAPF-2 unit rather than modifications of the current SPP permits.

This will be the initial Part 70 permit for the Hydrochloric Acid Production Furnace No. 2.

A number of Part 70 permits addressing other process units at the Shintech Plaquemine Plant have already been issued. These include:

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Permit No.	Process Unit	Date Issued
1280-00118-V2	Shintech Plaquemine Plant 1	3/1/2010
PSD-LA-709(M-1)	Shintech Plaquemine Plant 1	2/27/2009
3063-V0	Shintech Plaquemine Plant 2	7/10/2008
PSD-LA-731	Shintech Plaquemine Plant 2	7/10/2008
3064-V0	Hydrochloric Acid Production Furnace 1	2/27/2009
PSD-LA-738	Hydrochloric Acid Production Furnace 1	2/27/2009

V. PROPOSED PERMIT/PROJECT INFORMATION

A permit application and Emission Inventory Questionnaire (EIQ) dated December 21, 2007, were received requesting a permit. The application was deemed administratively complete in accordance with LAC 33:III.519.A on December 28, 2007.

Pursuant to LAC 33:III.519.A.4, a notice of the completeness determination was published in Plaquemine Post/South, Plaquemine, Louisiana, on January 10, 2008.

Process Description

The SPP-2 will produce liquid byproducts in the VCM unit. The byproduct streams are considered waste streams classified as D001, K019, and K020 under the Resource Conservation and Recovery Act (RCRA) regulations 40 CFR 261. The liquid byproducts are rich in chlorine. To better manage the waste streams and provide HCl to the process, Shintech proposes to install HAPF, Emission Point Number (EPN) 2H-1, that will combust the waste and produce HCl and HCl Storage Tank Scrubber, EPN 2H-2, that will support the HAPF.

In the absence of HAPF-2, liquid byproducts from the VCM unit are sent to an off-site location for use as feedstock in other chemical processes or disposal. Upon completion of the HAPF-2 project, the liquid byproducts will be sent to the HAPF to generate HCl. HCl generated by the HAPF will be combined with HCl flow recovered from the cracking process and sent to the oxhydrochlorination process. Additionally, heat from the combustion of liquid byproducts in the HAPF will be recovered by a waste heat boiler. Installation of the HAPF will form a closed-loop system, achieve maximum material and energy efficiency, and minimize waste generation.

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Overview of the HAPF Process

As a waste treatment system, the HAPF-2 unit will consist of liquid waste storage tanks, a waste storage feed tank, a combustion chamber (i.e. the furnace), a waste heat boiler, a bubble cap tray acid absorber, a bubble cap tray caustic scrubber, a selective catalytic reduction system (SCR) for nitrogen oxides (NO_x) control, and an exhaust stack. The liquid waste storage tanks are included in PSD Permit No. PSD-LA-731 and Title V Permit No. 3063-V0; therefore, these tanks are not included in this air permit application.

The liquid waste from the distillation process will be stored in three tanks. The liquid waste will be pumped from one of the storage tanks to waste feed tank 2MTK-501, and fed to the furnace. The liquid waste will be combusted in the furnace and chlorinated organic compounds will be decomposed to form HCl. The flue gas from the furnace will pass through a heat recovery boiler before it enters a quencher. In the quencher, acid solution from downstream process vessels will be sprayed to the flue gas to cool it for absorption in the next stage of the process, which will be an HCl absorber. The HCl absorber is a bubble cap tray column where HCl in the flue gas will be captured as aqueous HCl. The rich aqueous HCl from the bottom of the absorber will be fed to an HCl stripper that reverses the absorption process and transfers HCl from aqueous solution into vapor phase for process use as feedstock in the VCM Unit. The lean solution from the bottom of the stripper will be returned to the absorber as absorbing solution, where it will absorb HCl gas to form rich solution. The rich solution can then be fed again to the stripper as a feed stock. With the majority of HCl in the exhaust removed in the absorber, the off-gas from the absorber will be directed to a caustic scrubber where residual HCl will be removed for the purpose of air pollution control. The cleaned off-gas will be routed through a Selective Catalytic Reduction (SCR) system to reduce NO_x before it is discharged to the atmosphere.

General information for the system is provided below:

Manufacturer:	To be determined (TBD)
Maximum waste feed:	7,000 lbs/hr of liquid waste
Auxiliary fuel:	Natural gas (for startup only)
Steam production:	22,500 lb/hr (10.2 metric tons/hr) at 210 pounds per square inch gauge (psig), saturated
Recovered HCl:	4,920 lbs/hr (2,230 kilograms per hour (kg/hr)), approximately 95% recovery
Scrubber blowdown:	26,000 lbs/hr (11.8 metric tons/hr)
Stack gas flow rate:	746,000 scfh (19,600 Nm ³ /hr)

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There are no process vents connected to the unit, i.e., HAPF-2 is not used as an air pollution control device for process vents at the plant.

More detailed descriptions are provided below for each component of the HAPF-2 system.

Waste Storage Tanks

Liquid waste generated during the EDC production process will be collected in three storage tanks (2MTK-499A, 2MTK-499B, and 2MTK-496). The liquid waste storage tanks are constructed of carbon steel. The capacities of 2MTK-499A, 2MTK-499B, and 2MTK-496 are 50,000 gallons, 50,000 gallons, and 300,000 gallons, respectively. The storage tanks are vented to vapor thermal oxidizers. These three storage tanks and the vapor thermal oxidizers have been permitted in PSD Permit No. PSD-LA-731 and Title V Permit No. 3063-V0. The three storage tanks will meet all RCRA requirements. They will be used as <90-day waste storage tanks, as the waste will be shipped off site for disposal until air and RCRA permits are issued for the HAPF.

Tanks 2MTK-499A and 2MTK-499B will be used as primary storage tanks. Tank 2MTK-496 will serve as a secondary storage tank and will be used as a surge tank for the two primary tanks. The liquid waste will be pumped from one of the storage tanks to the waste feed tank 2MTK-501, from which the liquid waste will be fed to the HAPF for combustion.

A small portion (10-20%) of the discharges of these pumps will be returned to their respective tanks to keep the liquid in the tanks agitated and mixed. Mixing by recirculating a portion of the discharges to the tanks provides consistency within the waste stream, which minimizes variability of feed composition and probability of uncharacteristic waste surge.

Waste Feed System

Liquid feed will be hard piped from storage tanks to an 8,000 gallon feed tank (2MTK-501).

When good combustion is established in the combustion chamber and prerequisite conditions for waste feed are met, the liquid waste is pumped at a pressure of 120 psig to feed to the combustor via flow rate control valve. Approximately 10-20% of the feed to the pump discharge is redirected back to the feed tank. This small stream of recirculation keeps the waste in the feed tank agitated and well mixed. The majority of the feed pump discharge goes to the combustor. A block valve is also installed in the feed line for waste feed cutoff. The liquid waste is pumped into the combustion chamber through an injector gun with atomizing compressed air at a maximum rate of 7,000 lbs/hr. The atomizing air is supplied at a pressure of 100 psig. The waste injection rate is controlled by flowrate indicator and controller (FIC) with the "high" (H) limit established for maximum feed rate.

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2MTK-501 will vent to the SPP-2 vapor thermal oxidizers in the same fashion as other vents from the process area. The vapor flow rate from the feed tank vent to the thermal oxidizers is expected to be negligible compared to the current total vapor flow to the thermal oxidizers, and the emissions from the thermal oxidizers are not expected to change due to adding the small feed tank vent.

Auxiliary Fuel Feed System

Auxiliary fuel is natural gas and will be used only for startup. Natural gas is used during the first 1 to 2 days of operation to pre-heat the unit. Natural gas is delivered via a flow rate control valve through a gas injector on the burner. The expected maximum heat release of the auxiliary fuel system will be 19.8 million British thermal units per hour (MM Btu/hr) for 24 hours during preheating.

Combustion Chamber

The HAPF-2 combustion chamber is designed based on proven technologies, successful installations, and long operation experience in other facilities including a facility operated by Shintech's parent company in Japan, which has been in operation for 35 years. The combustion chamber is a horizontal refractory lined vessel. It has a 31'-9" long carbon steel cylindrical shell with an outer diameter of 11'-2". The total volume of the combustion chamber is 1,500 cubic feet. At the maximum combustion gas flow rate proposed in this CPT, the dwell time in the combustion chamber is approximately 2.0 seconds.

A vortex type burner is mounted on one end of the combustion chamber. The refractory lining consists of a high temperature refractory firebrick backed up by an insulating brick. The refractory lining is designed for a maximum operating temperature of 2,820 °F. The operating temperature will be kept constant at approximately 2,640 °F by regulating the excess air ratio. Excess air is monitored in the SCR inlet by QIA-O2 for which a low limit (L) is established for complete combustion. Operating temperature is monitored by three thermocouples placed at 27, 28, and 29 feet downstream from the tip of the burner. Combustion chamber temperature is represented by average values of three valid readings from the three thermocouples. An operating range for combustion chamber temperature will be established. If the combustion chamber temperature falls outside of the range, waste feed will automatically be cut off.

The combustion chamber will be operated at a positive pressure of 3-4 psig. The chamber itself has an integral carbon steel shell. All connections (e.g., the transition from the combustion chamber to the heat recovery boiler) will be sealed by gaskets designed for this

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type of applications to prevent fugitive emissions from the combustion chamber. Leak checks will be conducted periodically to ensure the integrity of the seals.

Organics in the waste will be almost completely oxidized to form carbon dioxide (CO_2), water (H_2O), HCl , and a small amount of Cl_2 . Low pressure steam will be added to the burner, as required, to reduce the formation of free Cl_2 .

Combustion Air Supply

Combustion air is supplied to the combustion chamber by a blower. A flow control valve regulates the combustion air proportionally to keep a suitable excess air ratio. The combustion air enters the chamber at the burner windbox and passes through a set of directional vanes that impart a strong rotational (vortex) motion to the air. The vortex goes through a restriction at the inlet to the combustion chamber. Waste feed and natural gas are introduced into the center of the vortex.

Waste Heat Recovery Boiler

Combustion gas enters a waste heat recovery boiler to produce steam. The boiler is fabricated from carbon steel. It is a single pass, elevated drum, firetube boiler. It uses natural circulation with an external steam drum that provides a demisting device for vapor/liquid separation. A heat resistant cast lining is applied to the surface of the inlet tube sheet and ferrules are installed at each of fire-tube inlets. A continuous blow down device is provided for maintaining the quality both of the generated steam and water in the boiler. The pressure of the boiler is kept constant at 200 to 230 psig by regulating the amount of steam. The water level in the steam drum is kept constant by regulating the amount of the boiler feed water.

The waste heat boiler has a steam generating capacity of 22,500 lbs/hr (10.2 metric tons/hr) and a heating duty of 23.9 MM Btu/hr.

The combustion gases enter the boiler at a temperature of approximately 2,640 °F and exit the boiler at a temperature approximately 660 °F. The combustion gas dwell time in the boiler section is approximately 0.5 seconds.

Quencher, Hydrochloric Acid Absorber, and Stripper

The liquid waste contains chlorinated organic compounds. Upon combustion, the chlorinated organic compounds will be decomposed and form CO_2 and H_2O as well as HCl . The system is designed to recover HCl . Capturing HCl is accomplished by unit operation

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of an absorber. The combustion gases exit from the waste heat boiler at a temperature of 660 °F, which is too hot for gas absorption operation. In order to achieve effective HCl absorption, a quencher is used to cool the combustion gases before they enter the absorber.

The quencher is a vertical downflow, acid proof brick-lined, spray tower with a circulating liquid pump. Combustion gases enter from the top of the quencher and are cooled by direct contact with the circulating liquid, which is sprayed at the top of the quencher. The gases are quenched from 660 °F to their saturation temperature of approximately 177 °F as they flow down through a set of the spray contactors. The cooled gases exit the quencher from the bottom of the spray tower. The quencher design flow rate is 494,000 scfh (14,000 Nm³/hr). Most of non-volatile matters such as ferric chloride (FeCl₃) are caught in the quencher and discharged in the purge acid, which is drawn from the circulating liquid between the absorber and the stripper. Make-up liquid containing HCl is supplied via the absorber section.

The acid absorber is constructed of fiber reinforced plastic (FRP) and polyvinylidene difluoride (PVDF) plastic. The acid absorber is a bubble cap tray design. The gases from the quencher enter the absorber from the bottom of the absorption column, counter flow against absorbing liquid, and exit from the top of the column. HCl is absorbed by contact with lean acid from the HCl stripper and water on the bubble cap trays in the absorber column. Absorbing water is supplied at the top of the column. Almost all the HCl in the combustion gases is absorbed in the liquid as HCl solution. A part of the HCl solution is sent to the quencher as make-up liquid.

Rich acid is recovered from the bottom of the absorber and fed to a stripper as a feed stock. HCl is stripped in the stripping tower. HCl gas is produced at the top of the stripper. A condenser removes water from the HCl gas. The gas is pressurized by a gas compressor and is recovered as a product. Condensate is returned to the top of the stripper. The bottom solution of the stripper is returned to the absorber as absorbing solution that absorbs HCl gas to form a rich solution, which is fed again to the stripper as a feed stock.

The acid absorber has dual functions – it produces HCl for process use and it serves as an air pollution control device to remove acid from the flue gas.

Caustic Scrubber

A caustic scrubber is designed as an air pollution control device to remove residual HCl and other pollutants in the gas stream exiting from the acid absorber. Flue gases exit from the top of the absorber and directly enter the bubble cap tray caustic scrubber column. Constructed of FRP and PVDF, the scrubber is 38'-5" high with a diameter of 7'-10".

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Caustic soda and dilution water are supplied by flow rate control as scrubbing media to polish the flue gas cleanup and pick up most of the remaining chlorine and hydrochloric acid.

Reducing agent is also supplied by flow rate control to the scrubbing liquid to decompose sodium chlorite (NaClO), which is formed by a reaction between caustic soda and chlorine. Sodium chlorite needs to be removed because it may cause corrosion problem with the construction materials of the scrubber and downstream equipment.

Scrubbing water is drawn from the scrubber bottom and sent to the facility's wastewater treatment plant. After exiting the scrubber, the flue gases are passed through a demister where excess mist and condensed liquids are collected and removed.

SCR System

The SCR system is designed to remove approximately 90% of NO_x from the flue gas. The system consists of a gas heater, filter, and a de- NO_x catalyst bed. The flue gas from the caustic scrubber enters the gas heater, which by combining the flue gas with the gas heater combustion gases raises the temperature to approximately 350-430 °F—the catalyst working temperature.

The heated gas enters a filter to remove solids, such as sodium chloride, that may reduce catalyst activity. After the filter, aqueous ammonia solution is injected into the duct with atomizing air upstream of SCR catalyst bed. The SCR catalyst is fixed on a cassette type ceramic structure. Ammonia is used as a reagent. Ammonia injection is controlled by regulating the aqueous ammonia feed rate to yield the desired ammonia to NO_x mole ratio. A continuous NO_x monitoring device at the outlet of SCR system, i.e. the exhaust stack, is used to regulate the aqueous ammonia injection rate.

Exhaust Stack

After the SCR, the cleaned flue gases are discharged into the atmosphere through an 82-foot tall free standing stack. The stack is cylindrical with an internal diameter of 31.5 inches. It is constructed of carbon steel.

Sampling ports will be installed on the stack at an elevation that is free of flow disturbance. There will be at least one pair of sampling ports, 90 degrees apart, and they will comply with EPA Method 1. Each sampling port will be a 4-inch nozzle to facilitate iso-kinetic sampling probes. A sampling platform surrounding the stack will be constructed near the

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sampling ports. A ladder on the stack with a cage will provide sampling crew members to access the sampling platform.

A sampling probe for CEMS will also be installed on the stack. A heated sampling line will convey the sample from the probe to the CEMS on the ground.

VI. ATTAINMENT STATUS OF PARISH

<u>Pollutant</u>	<u>Attainment Status</u>	<u>Designation</u>
PM _{2.5}	Attainment	N/A
PM ₁₀	Attainment	N/A
SO ₂	Attainment	N/A
NO ₂	Attainment	N/A
CO	Attainment	N/A
Ozone ²	Nonattainment	Status
Lead	Attainment	N/A

VII. PERMITTED AIR EMISSIONS

Sources of air emissions are listed on the "Inventories" page of the proposed permit.

Estimated emissions of criteria pollutants from the facility, in tons per year (TPY), are as follows:

<u>Pollutant</u>	<u>Emissions</u>
PM ₁₀	6.04
SO ₂	0.01
NO _x	2.49
CO	15.17
VOC *	3.14

PM₁₀ and VOC compounds classified as LAC 33:III.Chapter 51-regulated toxic air pollutants (TAP) are speciated below. This list encompasses all Hazardous Air Pollutants (HAP) regulated pursuant to Section 112 of the Clean Air Act. Note, however, all TAPs are not HAPs (e.g., ammonia, hydrogen sulfide).

² VOC and NO_x are regulated as surrogates.

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*VOC LAC 33:III Chapter 51 Toxic Air Pollutants (TAPs):

<u>Pollutant</u>	<u>Emissions</u>
Benzene	0.03
Carbon Tetrachloride	0.13
Chlorobenzene	0.02
Chloroethane	<0.01
Chloroform	0.16
Chloroprene	0.07
1,2-Dichloroethane	0.17
Hexachloroethane	0.06
1,1,2,2-Tetrachloroethane	0.03
1,1,2-Trichloroethane	1.10
Trichloroethylene	0.01
Vinyl Chloride	0.02
Vinylidene Chloride	0.01
Total	1.79

The Shintech Plaquemine Plant is a major source of PSD, NNSR, Title V, a major source of HAPs, and a major source of TAPs.

Permitted limits for individual emissions units and groups of emissions units, if applicable, are set forth in the tables of the proposed permit entitled "Emission Rates for Criteria Pollutants" and "Emission Rates for TAP/HAP & Other Pollutants." These tables are part of the permit.

Emissions calculations can be found in Appendix A of the permit application. The calculations address the manufacturer's specifications, fuel composition (e.g., sulfur content), emissions factors, and other assumptions on which the emissions limitations are based and have been reviewed by the permit writer for accuracy.

General Condition XVII Activities

Very small emissions to the air resulting from routine operations that are predictable, expected, periodic, and quantifiable and that are submitted by the applicant and approved by the Air Permits Division are considered authorized discharges. These releases are not included in the permit totals because they are small and will have an insignificant impact on air quality. However, such emissions are considered when determining the facility's

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potential to emit for evaluation of applicable requirements. Approved General Condition XVII activities are noted in Section VIII of the proposed permit.

Insignificant Activities

The emissions units or activities listed in Section IX of the proposed permit have been classified as insignificant pursuant to LAC 33:III.501.B.5. By such listing, the LDEQ exempts these sources or types of sources from the requirement to obtain a permit under LAC 33:III.Chapter 5. However, such emissions are considered when determining the facility's potential to emit for evaluation of applicable requirements.

VIII. REGULATORY APPLICABILITY

Regulatory applicability is discussed in three sections of the proposed permit: Section X (Table 1), Section XI (Table 2), and Specific Requirements. Each is discussed in more detail below.

Section X (Table 1): Applicable Louisiana and Federal Air Quality Requirements

Section X (Table 1) summarizes all applicable federal and state regulations. In the matrix, a "1" represents a regulation applies to the emissions unit. A "1" is also used if the emissions unit is exempt from the emissions standards or control requirements of the regulation, but monitoring, recordkeeping, and/or reporting requirements apply.

A "2" is used to note that the regulation has requirements that would apply to the emissions unit, but the unit is exempt from these requirements due to meeting a specific criterion, such as it has not been constructed, modified, or reconstructed since the regulation has been effective. If the specific criterion changes, the emissions unit will have to comply at a future date. Each "2" entry is explained in Section XI (Table 2).

A "3" signifies that the regulation applies to this general type of source (e.g., furnace, distillation column, boiler, fugitive emissions, etc.), but does not apply to the particular emissions unit. Each "3" entry is explained in Section XI (Table 2).

If blank, the regulation clearly does not apply to this type of emissions unit.

Section XI (Table 2): Explanation for Exemption Status or Non-Applicability of a Source

Section XI (Table 2) of the proposed permit provides explanation for either the exemption status or non-applicability of given federal or state regulation cited by 2 or 3 in the matrix presented in Section X (Table 1).

Specific Requirements

Applicable regulations, as well as any additional monitoring, recordkeeping, and

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reporting requirements necessary to demonstrate compliance with both the federal and state terms and conditions of the proposed permit, are provided in the "Specific Requirements" section. Any operating limitations (e.g., on hours of operation or throughput) are also set forth in this section. Associated with each Specific Requirement is a citation of the federal or state regulation upon which the authority to include that Specific Requirement is based.

1. Federal Regulations

40 CFR 60 – New Source Performance Standards (NSPS)

The following subparts are applicable at the HAPF-2: A and Dc. Applicable emission standards, monitoring, test methods and procedures, recordkeeping, and reporting requirements are summarized in the "Specific Requirements" section of the proposed permit.

40 CFR 61 – National Emission Standards for Hazardous Air Pollutants (NESHAP)

The following subparts are applicable at the HAPF-2: A and FF. Applicable emission standards, monitoring, test methods and procedures, recordkeeping, and reporting requirements are summarized in the "Specific Requirements" section of the proposed permit.

40 CFR 63 – Maximum Achievable Control Technology (MACT)

The following subparts are applicable at the HAPF-2: A and EEE. Applicable emission standards, monitoring, test methods and procedures, recordkeeping, and reporting requirements are summarized in the "Specific Requirements" section of the proposed permit.

Acid Rain Program

The Acid Rain Program, 40 CFR Part 72 – 78, applies to the fossil fuel-fired combustion devices listed in Tables 1-3 of 40 CFR 73.10 and other utility units, unless a unit is determined not to be an affected unit pursuant to 40 CFR 72.6(b). LDEQ has incorporated the Acid Rain Program by reference at LAC 33:III.505. HAPF-2 is not subject to the Acid Rain Program.

2. SIP-Approved State Regulations

Applicable state regulations are also noted in Section X (Table 1) of the proposed permit. Some state regulations have been approved by the U.S. Environmental Protection Agency (EPA) as part of Louisiana's State Implementation Plan (SIP). These regulations are

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referred to as “SIP-approved” and are enforceable by both LDEQ and EPA. All LAC 33:III.501.C.6 citations are federally enforceable unless otherwise noted.

3. State-Only Regulations

Individual chapters or sections of LAC 33:III noted by an asterisk in Section X (Table 1) are designated “state-only” pursuant to 40 CFR 70.6(b)(2). Terms and conditions of the proposed permit citing these chapters or sections are not SIP-approved and are not subject to the requirements of 40 CFR Part 70. These terms and conditions are enforceable by LDEQ, but not EPA. All conditions not designated as “state-only” are presumed to be federally enforceable.

State MACT (LAC 33:III.Chapter 51)

Shintech Plaquemine Plant is a major source of LAC 33:III.Chapter 51 regulated TAP. The owner or operator of any major source that emits or is permitted to emit a Class I or Class II TAP at a rate equal to or greater than the Minimum Emission Rate (MER) listed for that pollutant in LAC 33:III.5112 shall control emissions of that TAP to a degree that constitutes Maximum Achievable Control Technology (MACT), except that compliance with an applicable federal standard promulgated by the U.S. EPA in 40 CFR Part 63 shall constitute compliance with MACT for emissions of toxic air pollutants. Applicable Part 63 standards are addressed in Section VIII.1 of this Statement of Basis. MACT is not required for Class III TAPs; however, the impact of all TAP emissions must be below their respective Ambient Air Standards (AAS).

IX. NEW SOURCE REVIEW (NSR)

1. Prevention of Significant Deterioration (PSD)

The facility’s source category is listed in Table A of the definition of “major stationary source” in LAC 33:III.509. As such, the PSD major source threshold is 100 TPY (of any regulated NSR pollutant).

Shintech Plaquemine Plant is a major stationary source under the PSD program, LAC 33:III.509. The emissions increases associated with the proposed HAPF-2 facility (without regard to decreases) are as follows:

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Pollutant	Emission Increases				Net Changes	PSD Threshold	PSD Review Required
	SPP-1	SPP-2	HAPF-1	HAPF-2			
PM ₁₀	78.04	27.74	6.04	6.04	+117.86	15	Yes
SO ₂	3.53	2.72	0.01	0.01	+6.27	40	No
NO _x	95.10	44.15	2.49	2.49	+144.23	40	Yes
CO	212.78	179.45	15.17	15.17	+422.57	100	Yes
VOC	66.16	32.40	3.14	3.14	+104.84	N/A	No

The proposed facility will result in a significant net emissions increase of PM/PM₁₀, NO_x, and CO; therefore, PSD requirements, including best available control technology (BACT), apply for these pollutants.

A list of affected emissions units, baseline actual emissions, and projected actual emissions or potential to emit for each emissions unit, as well as a summary of contemporaneous changes associated with the proposed project, can be found in Appendix D of the permit application. This data has been reviewed by the permit writer.

BACT

Under current PSD regulations, an analysis of "top down" BACT is required for the control of each regulated pollutant emitted from a new major stationary source in excess of the specified significant emission rates. The top down approach to the BACT process involves determining the most stringent control technique available for a similar or identical source. If it can be shown that this level of control is infeasible based on technical, environmental, energy, and/or cost considerations, then it is rejected and the next most stringent level of control is determined and similarly evaluated. This process continues until a control level is arrived at which cannot be eliminated for any technical, environmental, or economic reason. A technically feasible control strategy is one that has been demonstrated to function efficiently on identical or similar processes. Additionally, BACT shall not result in emissions of any pollutant which would exceed any applicable standard under 40 CFR Parts 60 and 61.

PM/PM₁₀, NO_x, and CO emissions are above PSD significance levels and must undergo PSD analyses. The selection of control technology was based on the BACT analysis using a "top down" approach and included consideration of control of toxic materials.

Control of PM₁₀ and CO emissions were analyzed using a "top down" approach. Good design and maintenance and good combustion practices were determined as BACT for PM₁₀ and CO emissions from affected equipment at the proposed plant.

Shintech will utilize good combustion practices and selective catalytic reduction (SCR) to control NO_x emissions to a degree equivalent to the Lowest Achievable Emission Rates (LAER) to fulfill BACT requirements of the PSD program.

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A more thorough discussion of the BACT selection process can be found in PSD-LA-739. BACT and any other associated monitoring, recordkeeping, and reporting requirements necessary to determine compliance with the PSD permit are cited as "LAC 33:III.509" in the proposed Title V permit.

Air Quality Impact Analyses

Prevention of Significant Deterioration regulations require an analysis of existing air quality for those pollutants emitted in significant amounts from a proposed new major stationary source. PM₁₀, NO_x, and CO are pollutants of concern in this case.

Modeling was conducted using AERMOD pursuant to the protocol approved by the Office of Environmental Assessment, Air Quality Assessment Division.

Dispersion Model(s) Used: AERMOD (Criteria Pollutants) and ISC3 (TAPs)

Pollutant	Time Period	Calculated Maximum Ground Level Concentration	Louisiana Toxic Air Pollutant Ambient Air Quality Standard or (National Ambient Air Quality Standard {NAAQS})
PM ₁₀	24-Hour	3.72	150
PM ₁₀	Annual	0.63	50
NO _x	Annual	0.75	100
CO	1-hour	226.95	40,000
CO	8-hour	105.01	10,000
Ethylene dichloride	Annual	1.31	3.85
Vinyl chloride	Annual	1.56	1.19
Chlorine	8-hour	19.05	35.7

Modeling of PM₁₀, NO_x, and CO emissions from the proposed project indicates that the maximum offsite ground level concentrations of these pollutants will be below their respective PSD ambient significance levels and preconstruction monitoring levels. Therefore, pre-construction monitoring, refined NAAQS modeling, and increment consumption analyses were not required.

The toxics air quality dispersion modeling analysis was conducted in accordance with the approved air quality dispersion modeling protocol. For all TAPs other than vinyl chloride, the modeling results show that there were no ambient air impacts greater than the ambient air standards (AAS), demonstrating compliance with LAC 33:III.5109.B.

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Vinyl chloride modeling results show that there were nine receptors with ambient air impacts greater than the AAS. The receptors are located along Evergreen Road and at a restricted public access cemetery located off Evergreen Road to the East of the Georgia Gulf Facility.

The vinyl chloride AAS is based on an annual average. Since the receptor locations are in areas that are uninhabited and restricted access, long-term exposure to vinyl chloride is not expected. Additionally, modeling results show that the Shintech facility's contributions to the vinyl chloride impacts are relatively minor. A neighboring facility's vinyl chloride contributions to the nine receptors make up a significant portion of the predicted concentrations.

See Table 2 – Air Quality Analysis Summary of the proposed PSD permit for more detailed modeling results.

2. Nonattainment New Source Review (NNSR)

Shintech Plaquemine Plant is a major stationary source under the NNSR program, LAC 33:III.504. The emissions increases associated with the proposed HAPF-2 facility are as follows:

<u>Pollutant</u>	<u>Project Increase</u>	<u>NNSR Significance Level</u>	<u>Netting Required?</u>
NO _x	144.23	25 (10 for HRVOC) ³	Yes
VOC	104.86	25 (10 for HRVOC)	Yes

Increases of NO_x and VOC associated with the proposed project triggered a netting analysis.

<u>Pollutant</u>	<u>Project Increase</u>	<u>Contemporaneous Net Emissions Change</u>	<u>Net Emissions Increase</u>	<u>NNSR Significance Level</u>	<u>NNSR Review Required?</u>
NO _x	2.49	141.74	144.23	25	Yes
VOC	3.14	101.70	104.86	25	Yes

The proposed modifications will result in a significant net emissions increase of NO_x and VOC; therefore, NNSR applies.

A list of affected emissions units, baseline actual emissions, and projected actual emissions or potential to emit for each emissions unit, as well as a summary of contemporaneous changes associated with the proposed project, can be found in Appendix E of the permit application. This data has been reviewed by the permit writer.

³ See LAC 33:III.504.M.1.b. Highly reactive VOC (HRVOC) include 1,3-butadiene, butenes (all isomers), ethylene, and propylene.

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Lowest Achievable Emission Rate (LAER)

LAER Analyses for NO_x and VOC

HCl Production Furnace EQT0182 (EPN 2H-1)

The HCl Production Furnace is used to produce hydrochloric acid (HCl) by the oxidation of chlorinated VOC from the EDC distillation columns. Byproducts of this combustion reaction are carbon dioxide and water. The HCl will be removed by an HCl absorber/scrubber. Thermal oxidation provides safe, effective, and efficient control of almost any organic stream, provided that it is properly designed and maintained.

The heart of the HCl Production Furnace is a nozzle-stabilized flame maintained by, waste liquid injection, and supplemental air. Upon passing through the flame, the waste liquid is heated from its inlet temperature to its temperature to its ignition temperature. Any organic stream and air mixture will ignite if its temperature is raised to a sufficiently high level. Therefore, the level of VOC control is determined by the residence time and temperature in the furnace combustion chamber.

Pollutants that can be expected from HCl Production Furnace include products of combustion, i.e. PM₁₀ and NO_x, and products of incomplete combustion, i.e. CO and VOC. EPA's RBLC was searched for permitted furnaces in similar industrial uses for the 2005 LAER analysis. The lowest permitted emission rates nationally are:

- 0.03 lb NO_x / MM Btu with LNB
- 0.058 lb VOC / MM Btu and 99.9% Destruction of VOC

Since 2005, no other more stringent emission rates have been proposed for this type of process. Shintech proposes to match or surpass the above emission rates with the following LAER:

- 0.0146 lb NO_x / MM Btu using good combustion practices and SCR
- 0.0182 lb VOC / MM Btu and 99.9% Destruction of VOC

See the attached "Analysis of Validity of Emission Reductions as ERC" document.

3. Notification of Federal Land Manager

The Federal Land Manager (FLM) is responsible for evaluating a facility's projected impact on the Air Quality Related Values (AQRV) (e.g., visibility, sulfur and nitrogen

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deposition, any special considerations concerning sensitive resources, etc.⁴) and recommending that LDEQ either approve or disapprove the facility's permit application based on anticipated impacts. The FLM also may suggest changes or conditions on a permit. However, LDEQ makes the final decision on permit issuance. The FLM also advises reviewing agencies and permit applicants about other FLM concerns, identifies AQRV and assessment parameters for permit applicants, and makes ambient monitoring recommendations.

If LDEQ receives a PSD or NNSR permit application for a facility that "may affect" a Class I area, the FLM charged with direct responsibility for managing these lands is notified.

The meaning of the term "may affect" is interpreted by EPA policy to include all major sources or major modifications which propose to locate within 100 kilometers (km) of a Class I area. However, if a major source proposing to locate at a distance greater than 100 km is of such size that LDEQ or the FLM is concerned about potential impacts on a Class I area, LDEQ can ask the applicant to perform an analysis of the source's potential emissions impacts on the Class I area. This is because certain meteorological conditions, or the quantity or type of air emissions from large sources located further than 100 km, may cause adverse impacts. In order to determine whether a source located further than 100 km may affect a Class I area, LDEQ uses the Q/d approach.

Q/d refers to the ratio of the sum of the net emissions increase (in tons) of PM₁₀, SO₂, NO_x, and H₂SO₄ to the distance (in kilometers) of the facility from the nearest boundary of the Class I area.

LDEQ has determined that the proposed project will not adversely impact visibility in Breton National Wildlife Refuge, the nearest Class I area.

X. ADDITIONAL MONITORING AND TESTING REQUIREMENTS

In addition to the monitoring and testing requirements set forth by applicable state and federal regulations (see Section VIII of this Statement of Basis), a number of "LAC 33:III.507.H.1.a" and/or "LAC 33:III.501.C.6" conditions may appear in the "Specific Requirements" section of the proposed permit. These conditions have been added where no applicable regulation exists or where an applicable regulation does not contain sufficient monitoring, recordkeeping, and/or reporting provisions to ensure compliance. LAC 33:III.507.H.1.a provisions, which may include recordkeeping requirements, are intended to fulfill Part 70 periodic monitoring obligations under 40 CFR 70.6(a)(3)(i)(B).

XI. OPERATIONAL FLEXIBILITY

Emissions Caps

⁴ See <http://www2.nature.nps.gov/air/Permits/ARIS/AQRV.cfm>.

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An emissions cap is a permitting mechanism to limit allowable emissions of two or more emissions units below their collective potential to emit (PTE). The proposed permit does not establish an emissions cap.

Alternative Operating Scenarios

LAC 33:III.507.G.5 allows the owner or operator to operate under any operating scenario incorporated in the permit. Any reasonably anticipated alternative operating scenarios may be identified by the owner or operator through a permit application and included in the permit. The proposed permit does not include an alternative operating scenario.

Streamlined Requirements

When applicable requirements overlap or conflict, the permitting authority may choose to include in the permit the requirement that is determined to be most stringent or protective as detailed in EPA's "White Paper Number 2 for Improved Implementation of the Part 70 Operating Permits Program" (March 5, 1996). The overall objective is to determine the set of permit terms and conditions that will assure compliance with all applicable requirements for an emissions unit or group of emissions units so as to eliminate redundant or conflicting requirements. The proposed permit does not contain streamlined provisions.

XII. PERMIT SHIELD

A permit shield, as described in 40 CFR 70.6(f) and LAC 33:III.507.I, provides an "enforcement shield" which protects the facility from enforcement action for violations of applicable federal requirements. It is intended to protect the facility from liability for violations if the permit does not accurately reflect an applicable federal or federally enforceable requirement.

The proposed permit does not establish a permit shield.

XIII. IMPACTS ON AMBIENT AIR

Modeling of PM₁₀, NO_x, and CO is addressed in Section IX.1 of this Statement of Basis.

Modeling demonstrates that emissions from the Shintech Plaquemine Plant will not violate National Ambient Air Quality Standards (NAAQS) for criteria pollutants and Louisiana Ambient Air Standards (AAS) for toxic air pollutants. Therefore, Shintech Plaquemine Plant will not cause air quality impacts which could adversely affect human

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health or the environment.

Pollutant	Time Period	Calculated Maximum Ground Level Concentration	Louisiana Toxic Air Pollutant Ambient Air Quality Standard or (National Ambient Air Quality Standard {NAAQS})
PM ₁₀	24-Hour	3.72	150
PM ₁₀	Annual	0.63	50
NO _x	Annual	0.75	100
CO	1-hour	226.95	40,000
CO	8-hour	105.01	10,000
Ethylene dichloride	Annual	1.31	3.85
Vinyl chloride	Annual	1.56	1.19
Chlorine	8-hour	19.05	35.7

*Ambient air standard set forth in LAC 33:III.5112.

XIV. COMPLIANCE HISTORY AND CONSENT DECREES

Shintech Louisiana, LLC is proposing to construct and operate the HAPF-2. Thus, there are no enforcement actions pertaining to the HAPF-2 facility. The Shintech Plaquemine Plant 1 facility was cited Enforcement Action No. AE-C-08-0163 on August 28, 2008.

XV. REQUIREMENTS THAT HAVE BEEN SATISFIED

The following state and/or federal obligations have been satisfied and are therefore not included as Specific Requirements.

<u>Source ID</u>	<u>Citation</u>	<u>Description</u>
None		

XVI. OTHER REQUIREMENTS

Executive Order No. BJ 2008-7 directs all state agencies to administer their regulatory practices, programs, contracts, grants, and all other functions vested in them in a manner consistent with Louisiana's Comprehensive Master Plan for a Sustainable Coast and public interest to the maximum extent possible. If a proposed facility or modification is located in the Coastal Zone, LDEQ requires the applicant to document whether or not a

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Coastal Use Permit is required, and if so, whether it has been obtained. Coastal Use Permits are issued by the Coastal Management Division of the Louisiana Department of Natural Resources (LDNR).

The facility is not located in the Coastal Zone; therefore, a Coastal Use Permit is not required.

XVII. PUBLIC NOTICE/PUBLIC PARTICIPATION

Written comments, written requests for a public hearing, or written requests for notification of the final decision regarding this permit action may be submitted to:

Ms. Soumaya Ghosn
LDEQ, Public Participation Group
P.O. Box 4313
Baton Rouge, Louisiana 70821-4313

Written comments and/or written requests must be received prior to the deadline specified in the public notice. If LDEQ finds a significant degree of public interest, a public hearing will be held. All comments will be considered prior to a final permit decision.

LDEQ will send notification of the final permit decision to the applicant and to each person who has submitted written comments or a written request for notification of the final decision.

The permit application, proposed permit, and this Statement of Basis are available for review at LDEQ, Public Records Center, Room 127, 602 North 5th Street, Baton Rouge, Louisiana. Viewing hours are from 8:00 a.m. to 4:30 p.m., Monday through Friday (except holidays). Additional copies may be viewed at the local library identified in the public notice. The available information can also be accessed electronically via LDEQ's Electronic Document Management System (EDMS) on LDEQ's public website, www.deq.louisiana.gov.

Inquiries or requests for additional information regarding this permit action should be directed to the contact identified on page 1 of this Statement of Basis.

Persons wishing to be included on the public notice mailing list or for other public participation-related questions should contact LDEQ's Public Participation Group at P.O. Box 4313, Baton Rouge, LA 70821-4313; by e-mail at maillistrequest@ldeq.org; or contact LDEQ's Customer Service Center at (225) 219-LDEQ (219-5337). Alternatively, individuals may elect to receive public notices via e-mail by subscribing to LDEQ's Public Notification List Service at http://www.doa.louisiana.gov/oes/listservpage/ldeq_pn_listserv.htm.

Permit public notices can be viewed at LDEQ's "Public Notices" webpage,

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<http://www.deq.louisiana.gov/apps/pubNotice/default.asp>. Electronic access to each proposed permit and Statement of Basis current on notice is also available on this page. General information related to public participation in permitting activities can be viewed at www.deq.louisiana.gov/portal/tabid/2198/Default.aspx.

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APPENDIX A - ACRONYMS

AAS	Ambient Air Standard (LAC 33:III.Chapter 51)
AP-42	EPA document number of the Compilation of Air Pollutant Emission Factors
BACT	Best Available Control Technology
BTU	British Thermal Units
CAA	Clean Air Act
CAAA	Clean Air Act Amendments
CAM	Compliance Assurance Monitoring, 40 CFR 64
CEMS	Continuous Emission Monitoring System
CMS	Continuous Monitoring System
CO	Carbon monoxide
COMS	Continuous Opacity Monitoring System
CFR	Code of Federal Regulations
EI	Emissions Inventory (LAC 33:III.919)
EPA	(United States) Environmental Protection Agency
EIQ	Emission Inventory Questionnaire
ERC	Emission Reduction Credit
FR	Federal Register or Fixed Roof
H ₂ S	Hydrogen sulfide
H ₂ SO ₄	Sulfuric acid
HAP	Hazardous Air Pollutants
Hg	Mercury
HON	Hazardous Organic NESHAP
IBR	Incorporation by Reference
LAER	Lowest Achievable Emission Rate
LDEQ	Louisiana Department of Environmental Quality
M	Thousand
MM	Million
MACT	Maximum Achievable Control Technology
MEK	Methyl ethyl ketone
MIK	Methyl isobutyl ketone
MSDS	Material Safety Data Sheet
MTBE	Methyl tert-butyl ether
NAAQS	National Ambient Air Quality Standards
NAICS	North American Industrial Classification System (replacement to SIC)
NESHAP	National Emission Standards for Hazardous Air Pollutants
NMOC	Non-Methane Organic Compounds

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APPENDIX A - ACRONYMS

NO _x	Nitrogen Oxides
NNSR	Nonattainment New Source Review
NSPS	New Source Performance Standards
NSR	New Source Review
OEA	LDEQ Office of Environmental Assessment
OEC	LDEQ Office of Environmental Compliance
OES	LDEQ Office of Environmental Services
PM	Particulate Matter
PM ₁₀	Particulate Matter less than 10 microns in nominal diameter
PM _{2.5}	Particulate Matter less than 2.5 microns in nominal diameter
ppm	parts per million
ppmv	parts per million by volume
ppmw	parts per million by weight
PSD	Prevention of Significant Deterioration
PTE	Potential to Emit
RACT	Reasonably Available Control Technology
RBLC	RACT-BACT-LAER Clearinghouse
RMP	Risk Management Plan (40 CFR 68)
SICC	Standard Industrial Classification Code
SIP	State Implementation Plan
SO ₂	Sulfur Dioxide
SOCMI	Synthetic Organic Chemical Manufacturing Industry
TAP	Toxic Air Pollutants (LAC 33:III.Chapter 51)
TOC	Total Organic Compounds
TPY	Tons Per Year
TRS	Total Reduced Sulfur
TSP	Total Suspended Particulate
µg/m ³	Micrograms per Cubic Meter
UTM	Universal Transverse Mercator
VOC	Volatile Organic Compound
VOL	Volatile Organic Liquid
VRU	Vapor Recovery Unit

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APPENDIX B – GLOSSARY

Best Available Control Technologies (BACT) – an emissions limitation (including a visible emission standard) based on the maximum degree of reduction for each pollutant subject to regulation under this Part (Part III) which would be emitted from any proposed major stationary source or major modification which the administrative authority, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source or modification through application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of such pollutant.

CAM - Compliance Assurance Monitoring – A federal air regulation under 40 CFR Part 64.

Carbon Monoxide (CO) – (Carbon monoxide) a colorless, odorless gas produced by incomplete combustion of any carbonaceous (gasoline, natural gas, coal, oil, etc.) material.

Cooling Tower – A cooling system used in industry to cool hot water (by partial evaporation) before reusing it as a coolant.

Continuous Emission Monitoring System (CEMS) – The total combined equipment and systems required to continuously determine air contaminants and diluent gas concentrations and/or mass emission rate of a source effluent.

Cyclone – A control device that uses centrifugal force to separate particulate matter from the carrier gas stream.

Federally Enforceable Specific Condition – A federally enforceable specific condition written to limit the potential to Emit (PTE) of a source that is permanent, quantifiable, and practically enforceable. In order to meet these requirements, the draft permit containing the federally enforceable specific condition must be placed on public notice and include the following conditions:

- A clear statement of the operational limitation or condition which limits the source's potential to emit;
- Recordkeeping requirements related to the operational limitation or condition;
- A requirement that these records be made available for inspection by LDEQ personnel;
- A requirement to report for the previous calendar year.

Grandfathered Status – those facilities that were under actual construction or operation as of June 19, 1969, the signature date of the original Clean Air Act. These facilities are not required to obtain a permit. Facilities that are subject to Part 70 (Title V) requirements lose grandfathered status and must apply for a permit.

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Lowest Achievable Emission Rate (LAER) – for any source, the more stringent rate of emissions based on the following:

- a. the most stringent emissions limitation that is contained in the implementation plan of any state for such class or category of major stationary source, unless the owner or operator of the proposed stationary source demonstrates that such limitations are not achievable; or
- b. the most stringent emissions limitation that is achieved in practice by such class or category of stationary source. This limitation, when applied to a modification, means the lowest achievable emissions rate for the new or modified emissions units within the stationary source. In no event shall the application of this term permit a proposed new or modified major stationary source to emit any pollutant in excess of the amount allowable under an applicable new source standard of performance.

NESHAP – National Emission Standards for Hazardous Air Pollutants – Air emission standards for specific types of facilities, as outlined in 40 CFR Parts 61 through 63.

Maximum Achievable Control Technology (MACT) – the maximum degree of reduction in emissions of each air pollutant subject to LAC 33:III.Chapter 51 (including a prohibition on such emissions, where achievable) that the administrative authority, upon review of submitted MACT compliance plans and other relevant information and taking into consideration the cost of achieving such emission reduction, as well as any non-air-quality health and environmental impacts and energy requirements, determines is achievable through application of measures, processes, methods, systems, or techniques.

NSPS – New Source Performance Standards – Air emission standards for specific types of facilities, as outlined in 40 CFR Part 60.

New Source Review (NSR) – a preconstruction review and permitting program applicable to new or modified major stationary sources of criteria air pollutants regulated under the Clean Air Act (CAA). NSR is required by Parts C (“Prevention of Significant Deterioration of Air Quality”) and D (“Nonattainment New Source Review”).

Nonattainment New Source Review (NNSR) – a New Source Review permitting program for major sources in geographic areas that do not meet the National Ambient Air Quality Standards (NAAQS) set forth at 40 CFR Part 50. NNSR is designed to ensure that emissions associated with new or modified sources will be regulated with the goal of improving ambient air quality.

Organic Compound – any compound of carbon and another element. Examples: methane (CH₄), ethane (C₂H₆), carbon disulfide (CS₂).

Part 70 Operating Permit – also referred to as a Title V permit, required for major sources as defined in 40 CFR 70 and LAC 33:III.507.

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PM₁₀ – particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers as measured by the method in Title 40, Code of Federal Regulations, Part 50, Appendix J.

Potential to Emit (PTE) – the maximum capacity of a stationary source to emit any air pollutant under its physical and operational design.

Prevention of Significant Deterioration (PSD) – a New Source Review permitting program for major sources in geographic areas that meet the National Ambient Air Quality Standards (NAAQS) at 40 CFR Part 50. PSD requirements are designed to ensure that the air quality in attainment areas will not degrade.

Selective Catalytic Reduction (SCR) – A non-combustion control technology that destroys NO_x by injecting a reducing agent (e.g., ammonia) into the flue gas that, in the presence of a catalyst (e.g., vanadium, titanium, or zeolite), converts NO_x into molecular nitrogen and water.

Sulfur Dioxide (SO₂) – An oxide of sulphur.

TAP – LDEQ acronym for toxic air pollutants regulated under LAC 33 Part III, Chapter 51, Tables 1 through 3.

"Top Down" Approach – An approach which requires use of the most stringent control technology found to be technically feasible and appropriate based on environmental, energy, economic, and cost impacts.

Title V permit – see Part 70 Operating Permit.

Volatile Organic Compound (VOC) – any organic compound which participates in atmospheric photochemical reactions; that is, any organic compound other than those which the Administrator of the U.S. Environmental Protection Agency designates as having negligible photochemical reactivity.